



UNITED STATES PATENT AND TRADEMARK OFFICE.

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,228	04/22/2004	Yoshiyuki Odagawa	2593-0146PUS1	7126
2292	7590	08/24/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			RAZA, SAIRA B	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

1711

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,228

Applicant(s)

ODAGAWA ET AL.

Examiner

Saira Raza

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The previous rejections have been withdrawn and new rejections are provided herein.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-2 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JSR Corp. (JP 2003-246889) in view of Sakata et al. (US 6,498,223), further in view of Peascoe (US 4,202,948), as evidenced by Japan Synthetic Rubber Co. (JP 54-106554).
5. JSR Corp. discloses a thermoplastic-elastomer constituent suitable for the manufacture of various parts, such as an oil hose. The thermoplastic-elastomer constituent comprises a specific unsaturated nitrile-conjugated diene system rubber and olefin resin. Wherein monomers comprising the unsaturated nitrile-conjugated diene system rubber (component A) include, for example, butadiene and acrylonitrile. The content of an unsaturated nitrile unit in component A is 25 - 50 % of the weight, hence meeting the newly added limitation.
6. In reference to the olefin (component B), JSR Corp. discloses that the resin includes a copolymer of a propylene and other alpha olefin (such as ethylene) (Abstract, ¶s: 7, 18, 25, 30, 34).

Art Unit: 1711

7. JSR Corp. discloses that there is especially no limit in the molecular weight of component A. Hence attention is directed towards the Sakata reference, which discloses a rubber composition, comprising:

- a. two kinds of unsaturated nitrile-conjugated diene-based rubbers, one of which is a high molecular weight rubber (Rubber A) whose weight average molecular weight is 30,000 or more and the other of which is a low molecular weight rubber (Rubber B) whose weight average molecular weight is less than 30,000; and
- b. an ethylene-propylene copolymer rubber (Rubber C).

8. It is known that the weight average molecular weight (M_w) is always greater than the number average molecular weight (M_n), unless the molecular weight distribution is one. Sakata expressly discloses that for Rubber A, the M_w can be 90,000; therefore it is inherent that the corresponding M_n is less than 90,000. Sakata expressly discloses that for Rubber B, the M_w is between 1,000 and 20,000; therefore it is inherent that the corresponding M_n is in the range of 1,000 to 20,000.

9. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ component A of the JSR reference in the molecular weights disclosed by Sakata. Wherein, the motivation to do so is clearly taught by Sakata: "a vulcanized rubber produced using the rubber composition containing well-combined NBR-typed rubber having different molecular weights shows that excellent mechanical strength, oil resistance, gas barrier performance and the like are preserved and whose hardness is sufficiently reduced. And it is practically useful (col. 10, lines 27-33)." Sakata further teaches that when the weight-average molecular weight of a high molecular weight unsaturated nitrile-conjugated diene-typed rubber is 50,000 to 700,000 and the weight-average molecular weight of a low molecular weight rubber is 1,000 to 20,000, a vulcanized rubber whose oil

Art Unit: 1711

resistance and gas barrier performance are well-balanced with flexibility can be obtained (col. 4, lines 34-41).

10. In reference to the claimed graft copolymer, it appears that the combination of references above fails to teach this limitation; hence attention is directed towards the Peascoe reference. Peascoe discloses a graft copolymer, made by graft polymerizing a resin-forming monomer onto a spine rubber copolymer. The resin-forming monomer includes styrene/acrylonitrile, and the spine rubber copolymer includes ethylene-propylene-non-conjugated diene copolymers. Wherein the weight ratio of the rubbery copolymer is 40-70 wt%. Additionally, Peascoe discloses a blend comprised of the graft copolymer and a nitrile based resin, wherein ratio of the graft copolymer (D) to the nitrile based resin is 5/95 to 38/62 (Abstract, 1:61 to 2:5, 3:41-65, 4:14-16, 4:50-61, 5:5-10, 5:26-35).

11. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include graft copolymer of Peascoe in the rubber composition taught by the combination of JSR Corp. and Sakata in order to use a graft copolymer, that when present in a blend comprised of a nitrile based resin, exhibits high notched impart strength and is capable of undergoing repeated flexing in the severe hand flex test without failure. Therefore, it would have been obvious to combine the references to obtain the invention as specified in claim 1.

12. The inclusion of a graft copolymer into a acrylonitrile-butadiene copolymer rubber (a subordinate concept of alpha-beta-ethylenically unsaturated nitrile-conjugated diene copolymer rubber taught herein) and ethylene-propylene copolymer rubber (a subordinate concept of ethylene-alpha-olefin copolymer rubber) is evidenced by Japan Synthetic Rubber Co. Wherein the specific graft copolymer disclosed by Japan Synthetic Rubber Co. is obtained by performing graft copolymerization on a mixture of an aromatic vinyl compound and a polar vinyl compound (a

Art Unit: 1711

leading concept of an alpha-beta ethylenically unsaturated nitrile monomer) with an ethylene-propylene-unconjugated diene copolymer (abstract). Hence, as evidenced by Japan Synthetic Rubber Co. the above taught combination possess a reasonable expectation of success, since one of ordinary skill in the art would have considered it "logical to anticipated with a high degree of probability that a trial of the combination would have been successful." Wherein it has been held that only a reasonable expectation of success not absolute predictability is necessary for obviousness. *In re Longi*, 759F.2d 887, 897, 225 USPQ 645, 651-52 (Fed. Cir. 1985). *In re Pantzer*, 341 F2d. 121, 126;144 USPQ 415, 419 (CCPA 1965).

13. In reference to the limitations regarding the ratio of the components, it is noted that, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ any amounts which yield a vulcanized rubber having excellent mechanical strength, oil resistance, gas barrier performance and the like, together with a sufficient flexibility. Additionally, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

14. In reference to claim 2, JSR Corp. discloses a variety of crosslinking or vulcanizing agents suitable, wherein it would have been obvious to employ any suitable crosslinking agent in the invention taught by the combination of references above. Examples of suitable crosslinking agents include precipitated sulfur and di-tert-butyl peroxide.

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JSR Corp. (JP 2003-246889) in view of Sakata et al. (US 6,498,223), further in view of Peascoe (US 4,202,948), as evidenced by Japan Synthetic Rubber Co. (JP 54-106554), as applied to the claims above, and further in view of Middlebrook (US 4,456,727).

Art Unit: 1711

16. It appears that the references fail to teach that a polyamine vulcanizing agent is suitable for use. Hence attention is directed towards the Middlebrook reference, which discloses that sulfur is a common vulcanizing (crosslinking) agent and other, less preferred vulcanizing agents include organic peroxides such as for example benzoyl peroxide and hexamethylene diamine (col. 5, lines 40-45). Hence, hexamethylene diamine and sulfur are art recognized equivalents for their use in vulcanization of rubber, and the selection of any of these known equivalents would have been within the level of ordinary skill in the art.

17. It is noted that applicant cannot rely upon the foreign priority papers to overcome the rejection applied above under the JSR Corp. reference, because a translation of the foreign priority papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Response to Arguments

18. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

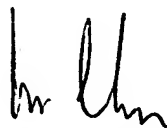
Art Unit: 1711

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Raza whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700